1. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(8 + 2i)(-9 + 7i)$$

A. $a \in [-59, -55]$ and $b \in [-78, -72]$

B. $a \in [-73, -63]$ and $b \in [11, 16]$

C. $a \in [-87, -85]$ and $b \in [-44, -36]$

D. $a \in [-59, -55]$ and $b \in [74, 77]$

E. $a \in [-87, -85]$ and $b \in [34, 41]$

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2. Simplify the expression below and choose the interval the simplification is contained within.

$$3 - 2^2 + 1 \div 10 * 18 \div 11$$

A. $[-1.12, -0.9]$

B. $[7.09, 7.26]$

C. $[6.71, 7.11]$

D. $[-0.85, -0.3]$

E. None of the above

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3. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{1188}{9}} + \sqrt{45}i$$

A. Rational

B. Nonreal Complex

C. Pure Imaginary

D. Not a Complex Number

E. Irrational

4. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{625}{0}} + \sqrt{45}i$$

A. Irrational

B. Pure Imaginary

C. Rational

D. Not a Complex Number

E. Nonreal Complex

5. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-9 - 33i}{-7 + 5i}$$

A. $a \in [-103.5, -101]$ and $b \in [3, 4.5]$

B. $a \in [-3, -1]$ and $b \in [3, 4.5]$

C. $a \in [-3, -1]$ and $b \in [275.5, 276.5]$

D. $a \in [1.5, 4]$ and $b \in [2, 3]$

E. $a \in [0.5, 1.5]$ and $b \in [-8, -6.5]$

6. Simplify the expression below and choose the interval the simplification is contained within.

$$6 - 3^2 + 19 \div 5 * 10 \div 2$$

A. $[33.31, 34.53]$

B. $[15.92, 16.33]$

C. $[14.78, 15.26]$

D. $[-2.93, -1.92]$

E. None of the above

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7. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-7 - 8i)(3 + 10i)$$

A. $a \in [56, 63]$ and $b \in [93, 97]$

B. $a \in [56, 63]$ and $b \in [-96, -92]$

C. $a \in [-103, -100]$ and $b \in [-46, -40]$

D. $a \in [-24, -16]$ and $b \in [-85, -73]$

E. $a \in [-103, -100]$ and $b \in [46, 47]$

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8. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-72 - 66i}{3 + 4i}$$

A. $a \in [-25, -23.5]$ and $b \in [-17.5, -15.5]$

B. $a \in [-20.5, -19]$ and $b \in [89.5, 91]$

C. $a \in [-20.5, -19]$ and $b \in [3, 5]$

D. $a \in [1.5, 2]$ and $b \in [-20, -19]$

E. $a \in [-481, -479]$ and $b \in [3, 5]$

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9. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{23}{0}}$$

A. Not a Real number

B. Whole

C. Rational

D. Irrational

E. Integer

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10. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{256}{625}}$$

A. Integer

B. Rational

C. Not a Real number

D. Whole

E. Irrational
